

**WHAT IS CLAIMED IS:**

1. An isolated nucleic acid molecule comprising an *ASMT* nucleic acid sequence, wherein said nucleic acid molecule is at least ten nucleotides in length, and wherein said *ASMT* nucleic acid sequence comprises a nucleotide sequence variant at a position selected from the group consisting of position 2278, 2412, 2477, 2534, 2615, 2838, 2840, 3370, 3398, 3435, 5791, 6176, 6324, 6373, 6426, 8011, 8078, 10259, 12025, 12084, 12327, 23855, 23936, 33672, 33765, and 33860 of SEQ ID NO:1.
2. The isolated nucleic acid of claim 1, wherein said nucleotide sequence variant is a nucleotide substitution.
3. The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is a cytosine substitution for thymine at position 2278 of SEQ ID NO:1, an adenine substitution for guanine at position 2412 of SEQ ID NO:1, a guanine substitution for adenine at position 2477 of SEQ ID NO:1, a guanine substitution for cytosine at position 2534 of SEQ ID NO:1, a cytosine substitution for thymine at position 2615 of SEQ ID NO:1, an adenine substitution for cytosine at position 2838 of SEQ ID NO:1, or a cytosine substitution for guanine at position 2840 of SEQ ID NO:1.
4. The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is an adenine substitution for thymine at nucleotide 3370 of position 3370 of SEQ ID NO:1, an insertion of a cytosine at position 3398 of SEQ ID NO:1, or a thymine substitution for guanine at position 3435 of SEQ ID NO:1.
5. The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is an adenine substitution for guanine at position 5791 of SEQ ID NO:1.
6. The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is a guanine substitution for an adenine at position 6178 of SEQ ID NO:1, an adenine substitution for a guanine at position 6324 of SEQ ID NO:1, a cytosine substitution for thymine at position 6373 of SEQ ID NO:1, or a thymine substitution for adenine at position 6426 of SEQ ID NO:1.

7. The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is a thymine substitution for cytosine at position 8011 of SEQ ID NO:1.
8. The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is a guanine substitution for adenine at position 8078 of SEQ ID NO:1, a cytosine substitution for guanine at position 10259 of SEQ ID NO:1, a cytosine substitution for an adenine at position 12025 of SEQ ID NO:1, or a thymine substitution for a cytosine at position 12084 of SEQ ID NO:1.
9. The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is a cytosine substitution for thymine at position 12327 of SEQ ID NO:1.
10. The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is a cytosine substitution for thymine at position 23855 of SEQ ID NO:1.
11. The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is a thymine substitution for cytosine at position 23936 of SEQ ID NO:1.
12. The isolated nucleic acid molecule of claim 1, wherein said nucleotide sequence variant is a thymine substitution for cytosine at position 33672 of SEQ ID NO:1, an adenine substitution for guanine at position 33765 of SEQ ID NO:1, or an adenine substitution for guanine at position 33860 of SEQ ID NO:1.
13. An isolated nucleic acid encoding an ASMT polypeptide, wherein said polypeptide comprises an ASMT amino acid sequence variant relative to the amino acid sequence of SEQ ID NO:5, and wherein said amino acid sequence variant is at a residue selected from the group consisting of 173, 287, and 306.
14. The isolated nucleic acid of claim 13, wherein said amino acid sequence variant is a tryptophan at residue 173, a threonine at residue 287, or an isoleucine at residue 306.
15. An isolated ASMT polypeptide, wherein said polypeptide comprises an ASMT amino acid sequence variant relative to the amino acid sequence of SEQ ID NO:5, wherein

said amino acid sequence variant is at a residue selected from the group consisting of 173, 287, and 306.

16. The isolated polypeptide of claim 15, wherein said amino acid sequence variant is a tryptophan at residue 173, a threonine at residue 287, or an isoleucine at residue 306.
17. The isolated polypeptide of claim 15, wherein activity of said polypeptide is altered relative to a wild type ASMT polypeptide.
18. An isolated nucleic acid molecule comprising an *ASMT* nucleic acid sequence, wherein said nucleic acid molecule is at least ten nucleotides in length, wherein said *ASMT* nucleic acid sequence has at least 99% sequence identity to a region of SEQ ID NO:3, wherein position 594 is a thymine, position 937 is a cytosine, and position 994 is a thymine, and wherein said region is selected from the group consisting of nucleotides 550 to 650 of SEQ ID NO:3, nucleotides 900 to 950 of SEQ ID NO:3, and nucleotides 951 to 1000 of SEQ ID NO:3.
19. An isolated nucleic acid molecule comprising an ASMT nucleic acid sequence, wherein said nucleic acid molecule is at least ten nucleotides in length, and wherein said ASMT nucleic acid sequence comprises at least two nucleotide sequence variants within any combination of coding sequences, intron sequences, 5' untranslated sequences, or 3' untranslated sequences.